

Weekly Report

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Intro

This week I spent several days on the seminar report and applied mathematics assignment. There were some ideas on the sensemaking project and the transfer learning project.

Reading

I read three papers on semantic interaction for the seminar report. Also there are some ideas on this field:

- [1] is the paper I reported in the seminar. This paper is a summary of their work on semantic interaction, which mainly describes a formal user study on ForceSPIRE, a prototype system that implements semantic interaction process.
- The ForceSPIRE and the details of semantic interaction comes from [2]. In this paper the author has reviewed the two processes in sensemaking, namely foraging and synthesis, and claims that most of the visual analytics application only considered one of the processes but not both of them. Under this circumstance they present semantic interaction as a complete process containing both foraging(modifying the computational model) and synthesis(viewing and interacting with the visual interface) stage. The ForceSPIRE system is just a prototype application for intelligence analysts based on semantic interaction. I think that the model presented in this paper is a good illustration of the whole sensemaking process and a starting point for our research.
- [3] is referred by the papers above to illustrate the definition and process of sensemaking.

Skills

None.

Research

- **Transfer Learning** I tried to design a new scenario for this project to modify the old idea into a collaborative application. In the new scenario, each analyst can use a decision tree model for classification tasks. The trees from those different analysts can be shared, and the subtrees can be reused by any analyst who thinks that the subtree is useful for current task. What I want to do is to let the analysts themselves transfer the existing model. I will make a detailed plan next week.

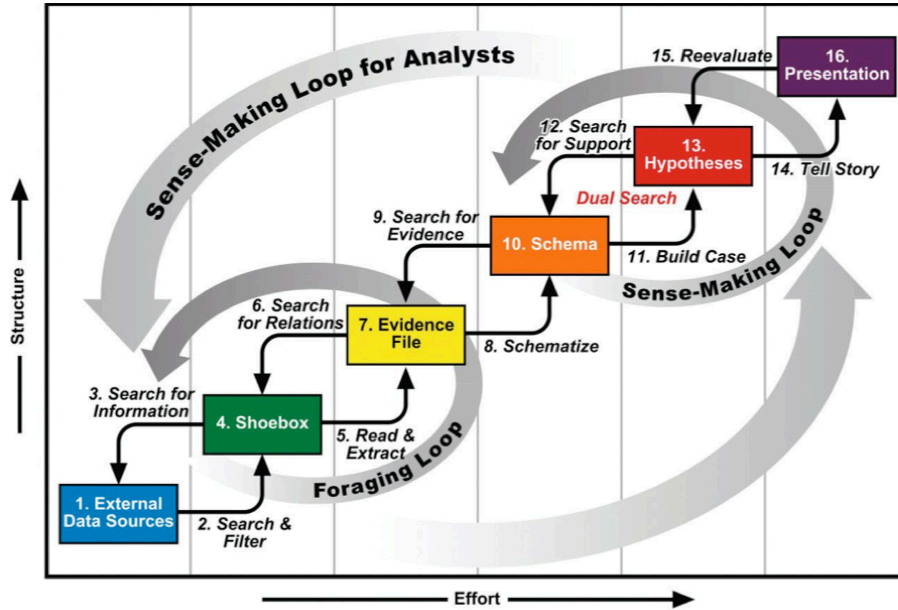


Figure 1: The sensemaking model illustrated in [2]

Miscellaneous Work

None.

Plan for Next Week

- Continue working on the two projects above.

References

- [1] A. Endert, P. Fiaux, and C. North, "Semantic Interaction for Sensemaking: Inferring Analytical Reasoning for Model Steering," *IEEE Transactions on Visualization and Computer Graphics*, vol. 18, no. 12, pp. 2879–2888, 2012.
- [2] A. Endert, P. Fiaux, and C. North, "Semantic interaction for visual text analytics," in *CHI '12: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, ACM Request Permissions, May 2012.
- [3] P. Pirolli and S. Card, "Sensemaking Processes of Intelligence Analysts and Possible Leverage Points as Identified Through Cognitive Task Analysis," in *Proceedings of the International Conference on Intelligence Analysis*, 2005.